CLAIMS

1. A single chain antibody that specifically binds to an HSV glycoprotein.

2. The single chain antibody of claim 1, wherein the HSV glycoprotein is HSV glycoprotein D (HSV gD).

3. The single chain antibody of claim 1, further comprising a transmembrane region of a cell surface receptor.

4. The single chain antibody of claim 3, wherein the cell surface receptor is a T-cell receptor.

5. The single chain antibody of claim 1, wherein the single chain antibody binds site VII or site Ib of HSV gD.

6. The single chain antibody of claim 1, coupled to a second antibody that binds to an HSV glycoprotein or other pathogen associated protein.

7. The single chain antibody of claim 6, wherein the antibody is a bi-specific antibody.

8. An isolated polynucleotide comprising a nucleic acid sequence encoding a single chain antibody that specifically binds a HSV glycoprotein.

9. The isolated polynucleotide of claim 8, wherein the HSV glycoprotein is a HSV glycoprotein D protein (HSV gD).

10. The isolated polynucleotide of claim 9, wherein the nucleic acid sequence is comprised in an expression cassette.

11. The isolated polynucleotide of claim 10, wherein the expression cassette further comprises an HSV promoter.

12. A composition comprising a single chain antibody that specifically binds an HSV glycoprotein.

13. The composition of claim 12, further comprising at least a second single chain antibody with a binding affinity for a pathogenic microbe that causes a sexually transmitted disease.

14. The composition of claim 13, wherein binding of the the second single chain antibody to the microbe reduces the infectivity of the microbe.

15. The composition of claim 14, wherein the microbe is HIV, HSV, chlamydia, or Hepatitis B virus.

16. The composition of claim 12, wherein the composition is comprised in a pharmaceutically acceptable composition.

17. The composition of claim 12, further comprising an antiviral therapeutic agent.

18. The composition of claim 17, wherein the antiviral therapeutic agent is a nucleoside analog.

19. The composition of claim 16, wherein the pharmaceutically acceptable composition is a topical composition.

20. The composition of claim 19, wherein the topical composition is a foam.

21. The composition of claim 19, wherein the topical composition is a gel.

22. The composition of claim 1, further comprising at least a second antibody.

23. The composition of claim 22, wherein the second antibody is a monoclonal antibody, Fab fragment, a single chain antibody, or a bi-specific antibody.

24. The composition of claim 23, wherein the second antibody is a humanized antibody.

25. A recombinant host cell comprising an expression cassette encoding a single chain antibody that specifically binds a HSV glycoprotein.

26. The recombinant host cell of claim 25, wherein the expression cassette is episomal.

27. The recombinant host cell of claim 25, wherein the cell is a bacterial cell.

28. A method of producing an HSV single chain antibody comprising:

a) introducing into a cell an expression cassette encoding a single chain antibody that binds an HSV glycoprotein; and

b) isolating the single chain antibody expressed by the cell.

29. The method of claim 28, wherein isolating the single chain antibody comprises purifying the single chain antibody.

30. The method of claim 29, wherein purifying the single chain antibody comprises affinity purification.

31. A method of assessing binding of a single chain antibody to an HSV glycoprotein comprising:

a) contacting a recombinant HSV glycoprotein with the single chain antibody to be assessed;

b) assessing the binding of the single chain antibody to the HSV glycoprotein.

32. The method of claim 31, wherein the HSV glycoprotein is HSV gD.

33. The method of claim 31, further comprising contacting HSV with the single chain antibody and assessing infectivity of the HSV.

34. A method for assessing single chain antibody inhibitors of HSV, comprising:

a) preparing a first binding mixture comprising a single chain antibody and HSV; and

b) measuring the infectivity of HSV in the mixture.

35. The method of claim 34, wherein infectivity is measured by plaque assay.

36. A method of preventing or treating an HSV infection comprising administering to a subject a pharmaceutically acceptable composition comprising at least a first single chain antibody that specifically binds a HSV glycoprotein.

37. The method of claim 36, wherein the first single chain antibody binds an epitope in a HSV glycoprotein.

38. The method of claim 37, wherein the HSV glycoprotein is HSV gD.

39. The method of claim 36, further comprising determining the subject was exposed to HSV.

40. The method of claim 36, wherein the proteinaceous composition further comprises at least a second single chain antibody having a binding specificity for at least a second microbe.

41. The method of claim 40, wherein at least a second microbe is HSV, HIV, chlamydia, or HepB.

42. A method of attenuating infectivity of HSV comprising contacting HSV with a single chain antibody that specifically binds a HSV glycoprotein in subject.

43. The method of claim 42, wherein the subject has been exposed to HSV.

44. The method of claim 42, wherein the subject is suspected of being exposed to HSV.

45. The method of claim 42, wherein the subject is at risk of exposure to HSV.

46. A method for determining the presence of HSV in a sample suspected of containing HSV, the method comprising exposing the sample to a single chain antibody that binds an HSV glycoprotein.

47. The method of claim 46, wherein the HSV glycoprotein is HSV gD.